



# Wilson Electronics Cell Amplifier Market Overview

May, 2017

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# Why are we here?

- Our mission is to expand wireless network coverage.
- In-place network protection rules on boosters have protected carriers and maintained their incentive to invest in network buildouts.
- We believe that parts of the regulations on boosters (Part 20) are:
  - Ambiguous
  - Restrict the market for viable wireless coverage solutions
- We want to implement specific recommendations that have broad support from industry.





# About Wilson Electronics

- American manufacturer / 250 employees: St. George, Utah
- 45 year RF product history
- Over 2MM units sold since company founding
- Three brands: weBoost, WilsonPro, zboost
- Pioneer of cellular signal boosters
  - Lead efforts with US major carriers and FCC to draft technical standards for signal boosters (Part 20.21)
  - IP leader in network protection standards for cellular booster operation
- On site customer support, 6 days per week

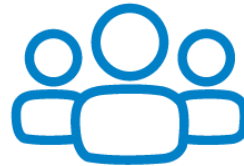


# Our Mission

Cost effectively expand wireless network coverage to everyone, everywhere.



**Every carrier**



**All consumers**



**Any place (mobile, home  
or commercial building)**



# The Issue

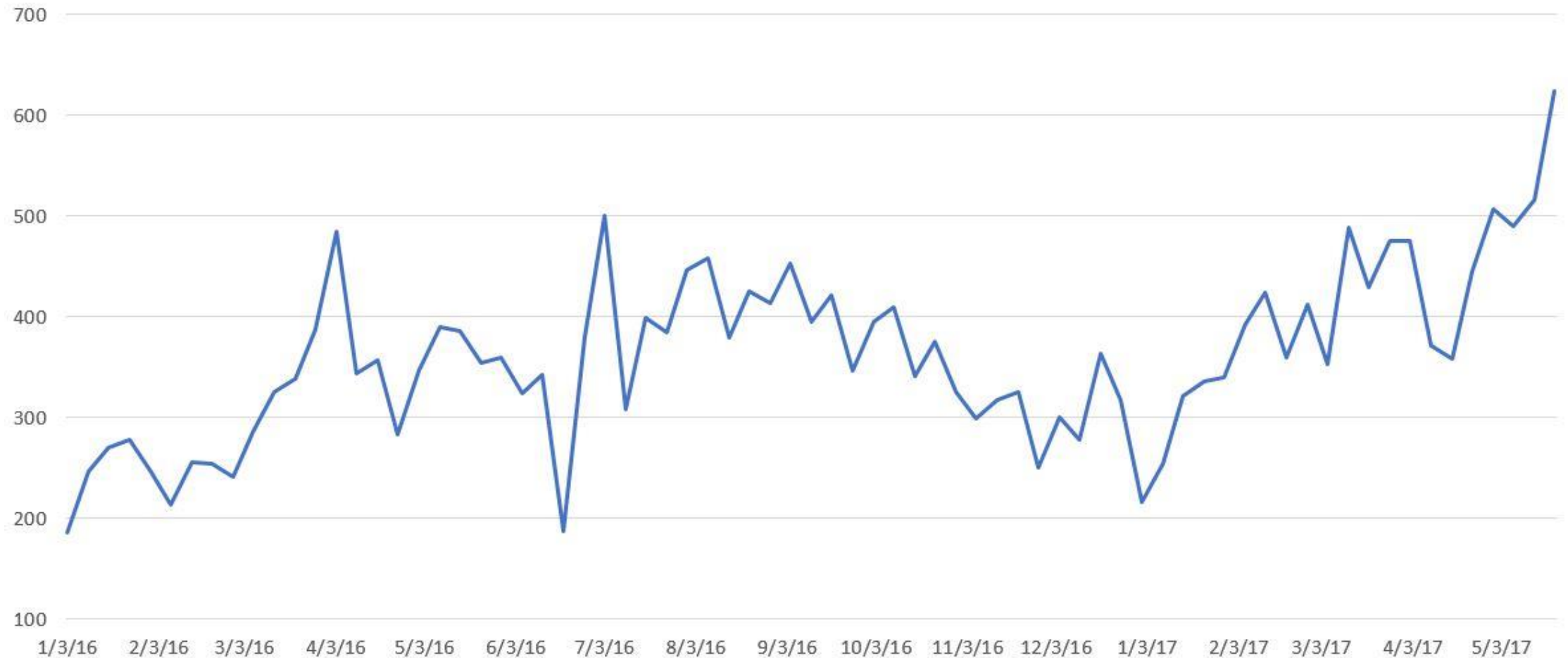
## 5 million commercial buildings in the US

- 98% are 200,000 sq ft. or less (4.8M)
- In-building cell coverage will always be imperfect regardless of macro network buildout
- **Carrier-grade DAS system not always economical for small sq ft buildings**
- Small business in particular at a competitive disadvantage due to lack of available cost-effective in-building cell coverage options
- Rural areas often have larger problems due to weak outside signal strength



# Not Just an In-Building Problem

Our vehicle booster sales up almost 6x since January 2016



# Vehicle Cell Coverage Needs

No alternative customer-installed cellular coverage solution available.



## **Logistics**

- Trucking
- Shipping



## **Recreational vehicles**

- Campers
- Small boats



## **Emergency services**

- SAR
- Firefighting (particularly wildfires)
- Ambulances
- Police



# What's at Stake

## Poor cell coverage compromises:

- Public safety
- Economic productivity
- Geographic equality of opportunity





# How does a Cellular Amplifier work?



## Outside (Donor) Antenna

This outside, or donor, antenna is directed towards the cell phone tower to pick up even the faintest of signals.



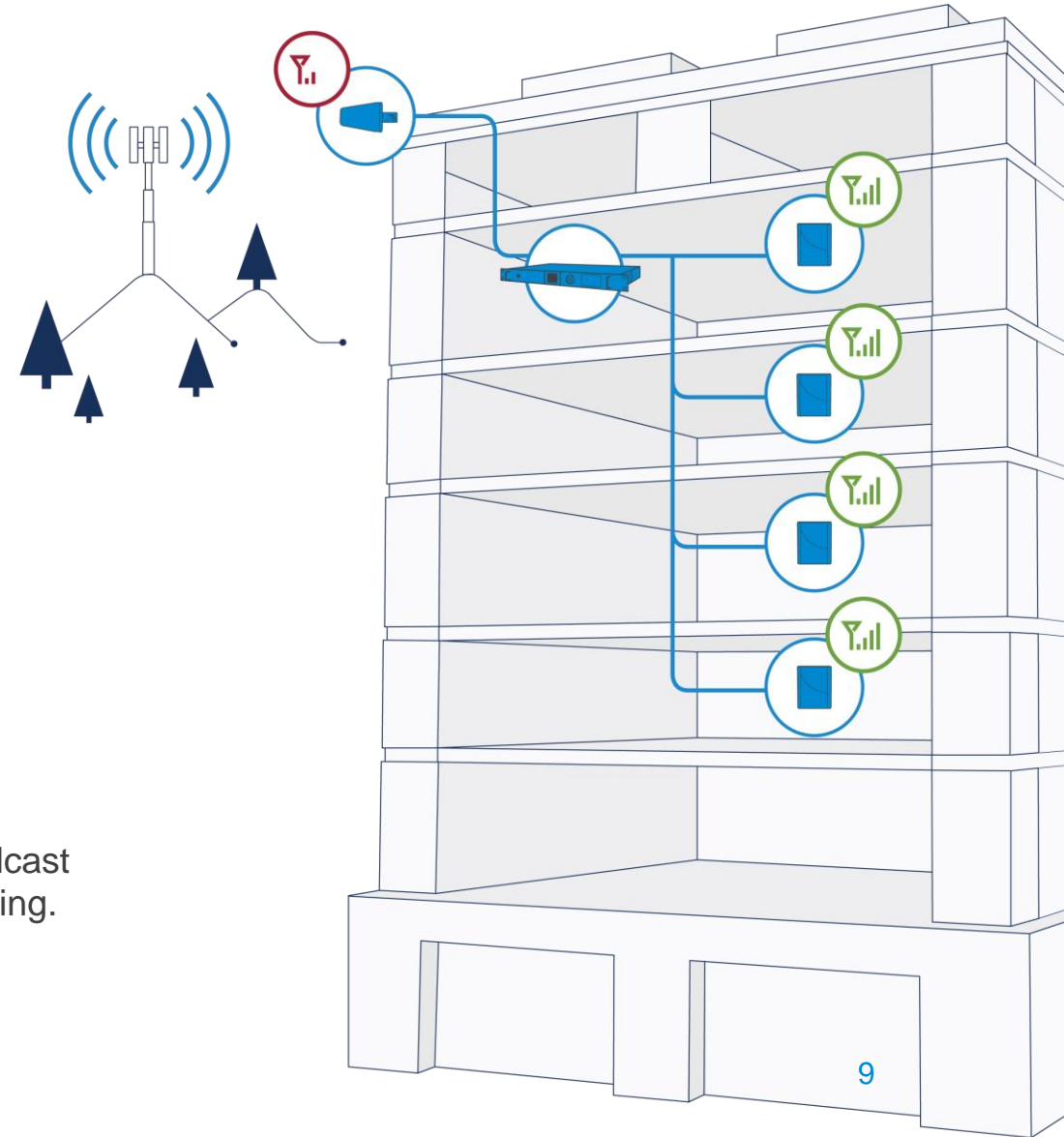
## Signal Amplifier

The cell phone signal amplifier receives all available signal from the donor and amplifies it.



## Inside (Internal) Antenna

The amplifier then sends the amplified signal to the inside antenna to be broadcast throughout the building.



# Carrier Network Protection



**Over 700K units shipped by Wilson Electronics** since Part 20.21 rule adoption. No reported carrier problems.



Wilson Electronics worked with carriers and the FCC to develop and implement technical features that will protect carrier networks and allow for the seamless “invisible” operation within the operator network.



Features include Oscillation Detection and Mitigation, Noise Floor Protection, and Uplink Inactivity.



# Differences versus Active DAS / Small Cell



## Cellular Amplifier

- Licensed by the FCC for consumer use
- Supports all carriers
- No backhaul required
- Users limited by local carrier network / outside signal level
- Requires outside signal
- Deployment time: weeks

VS.



## Active DAS

- Requires authorization by carriers & FCC
- Typically provides coverage for single carrier. Neutral host / multiple carrier system difficult to implement
- Backhaul required at ongoing cost
- No local carrier network limitation; offloads carrier networks to backhaul
- No outside signal required
- Deployment time: 1-2 years





# Differences versus WiFi



## Cellular Amplifier

- No user sign-on required
- Supports customer voice calls without impact on data rates
- No ongoing cost; customers pay for service
- User numbers limited by carrier network
- Ongoing maintenance required only when building layout or tower positions change (very seldom)
- Requires outside cell signal

VS.



## WiFi

- User must proactively connect to network
- Voice over WiFi, if allowed, burdens network and decreases data speed
- Backhaul required at ongoing cost
- User numbers limited by hardware
- Ongoing maintenance / reliability challenges with wifi network, backhaul and access points
- No outside cell signal required



# Thank You

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